

Welcome to David Tomanek's Home Page



I am Professor of Theoretical Condensed Matter Physics at Michigan State University.

My main research interest is to understand fundamental properties of nanostructured materials using advanced numerical techniques.

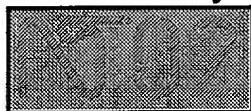
● Professional Information

[Publicity - Outreach](#) ● [Curriculum Vitae](#) ● [List of Publications](#) ● [List of Presentations](#) ● [Research Funding](#) ● [Patents](#) ● [Research Highlights](#) ● [Research Experience and Projects](#) ● [Summary](#)

● Service to the Science Community



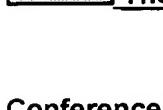
The Nanotube Site



NT'02 Conference



QTSM'02



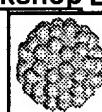
NT'01 Workshop



NT'99 Workshop



[International/Informal Cluster Workshops](#)



Cluster Science Collaboration



[Involvement in Bio-Sciences](#)

● People and Addresses

[Personal Information](#) ● [Contact Information](#) ● [Tomanek Group Members and Affiliates](#) ● [Condensed Matter Physics Theory Group](#) ● [Physics-Astronomy Site Map](#)

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fullerene collisions,



melting,



nanotubes,



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David Tomanek at Michigan State University / tomanek@pa.msu.edu

Local time is **09:18:46 EDT**



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David Tomanek's Grant Support at MSU

(1987 - present)

	Source of Support	Project Title	Award Amt. (Annual Rate)	Period Covered by Award
Support in 1987-1988:	CFMR ¹	(a)	\$9,500	12/01/87-09/30/88
	CFMR ¹	(b)	\$7,200	02/01/88-09/30/88
	AURIG ²	(c)	\$4,000	01/01/88-12/31/88
Support in 1988-1989:	CFMR ¹	(a)	\$9,100	10/01/88-09/30/89
	CFMR ¹	(d)	\$1,000 ³	10/01/88-09/30/89
	CFMR ¹	(e)	\$17,200 ³	10/01/88-09/30/89
Support in 1989-1990:	CFMR ¹	(e)	\$8,500 ³	10/01/89-09/30/90
	CFMR ¹	(f)	\$17,500	10/01/89-09/30/90
	ONR	(g)	\$84,542 ^{4,5}	12/15/89-12/14/90
Support in 1990-1991:	CFMR ¹	(g)	\$25,000	10/01/90-09/30/91
	CFMR ¹	(h)	\$15,000	10/01/90-09/30/91
	ONR	(g)	\$84,343 ^{4,5}	12/15/90-12/14/91
Support in 1991-1992:	NSF	(h)	\$39,637 ^{5,6}	02/15/90-06/31/91
	CFMR ¹	(g)	\$15,000	10/01/91-09/30/92
	CFMR ¹	(h)	\$25,000	10/01/91-09/30/92
Support in 1992-1993:	ONR	(g)	\$86,512 ^{4,5}	12/15/91-12/14/92
	NSF	(h)	\$41,063 ^{5,6}	02/15/91-06/31/92
	ONR	(g)	\$142,361	12/15/92-12/14/93
Support in 1993-1994:	NSF	(h)	\$42,630	02/15/92-06/31/93
	AFOSR	(i)	\$200,000	10/01/92-09/30/93
	CFMR	(j)	\$15,500	10/01/92-06/30/93
Support in 1994-1995:	ONR	(g)	\$107,742	12/15/93-12/14/94
	NSF	(h)	\$44,998	03/01/93-08/31/94
	AFOSR	(i)	\$147,764	9/30/93-09/29/94
Support in 1994-1995:	CFMR	(j)	\$30,500	07/01/93-06/30/94
	ONR	(g)	\$107,742	12/15/94-12/14/95
	NSF	(h)	\$47,000	03/01/94-02/28/95
Support in 1994-1995:	AFOSR	(i)	\$147,764	9/30/94-09/29/95
	CFMR	(k)	\$30,500	07/01/94-06/30/95
	CFMR	(l)	\$15,000	07/01/94-06/30/95

Support in 1995-1996:	ONR	(g)	N.C.T.E.⁷	12/15/95-12/14/96
	NSF	(h)	\$49,000	03/01/95-08/31/96
	AFOSR	(i)	N.C.T.E.⁷	9/30/95-09/29/96
	CFMR	(k)	\$18,000	07/01/95-06/30/96
	CFMR	(l)	\$18,000	07/01/95-06/30/96
Support in 1997-1998:	CFMR	(m)	\$13,000	07/01/97-06/30/98
Pending Support:	NSF	(n)	\$205,000	04/01/98-03/30/01
	NSF	(o)	\$2,300,400	04/01/98-03/30/03
	MURI	(p)	\$2,479,634	04/30/98-04/29/03

¹ Michigan State University Center for Fundamental Materials Research

² Michigan State University All University Research Initiation Grant

³ Award amount reflects the share of D. Tomanek.

⁴ The award amount will be increased by matching funds of \$90,000 from MSU and CFMR for dedicated computer equipment.

⁵ The award amount from U.S. ONR and NSF will be increased by matching funds of \$15,000 per year from CFMR.

⁶ The award amount will be increased by matching funds of \$10,000 from CFMR and MSU for dedicated computer equipment.

⁷ No Cost Time Extension.

(a) Electronic Structure of Adsorption Systems

(b) Calculation of Twin Plane Superconductivity in High T_C Perovskites

(c) Adsorbate-Induced Reconstruction of Metals

(d) Theory of Magnetic Properties and Pairing Mechanisms in Oxide Superconductors (co-principal investigators: Professor T.A. Kaplan and Professor S.D. Mahanti)

(e) Electronic Properties of Small Structures (co-principal investigators: Professor N. Birge, Professor M.A. Dubson, and Professor R. Cukier)

(f) Electronic and Structural Properties of Adsorption Systems

(g) First Principles Theory of the Interaction of Hydrogen with Surfaces and Bulk of Transition Metals

(h) Electronic and Structural Properties of Atomic Clusters (co-principal investigator: Professor George F. Bertsch)

(i) "Pseudo-Buckyballs" as Potential Superconductors (principal investigator: Professor James Dye, co-principal investigator: James E. Jackson)

(j) First Principles Theory of the Interaction of Hydrogen with Surfaces and Bulk of Transition Metals

(k) "Pseudo-Buckyballs" as New Potential Superconductors (principal investigators: Professor James Dye, Professor James E. Jackson, Professor David Tomanek)

(l) Magnetic Properties of Transition Metal Clusters (principal investigators: Professor Jerry A. Cowen, Professor James Dye, Professor David Tomanek)

(m) Growth conditions and electronic structure of carbon nanotubes.

(n) Structural, Electronic and Magnetic Transitions in Atomic Clusters.

(o) Expert systems, algorithms and materials analysis: From atoms to Engineering. NSF-IGERT proposal (P.I.: P. Duxbury, Co-PI's: J. Sticklen, W. Punch, J. Harrison, D. Tomanek).

(p) Synthesis, Processing, and Materials Applications of Carbon and Boron Nitride Single-Wall Nanotubes (Co-P.I.'s: Prof. Peter Eklund, University of Kentucky, Prof. Robert C. Haddon, University of Kentucky, Prof. Rodney Ruoff, Washington University, Prof. D. Tomanek, Michigan State University).



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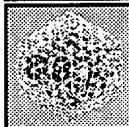
Last update: 21 November 1997 by [David Tomanek](#).

Patents

David Tomanek

- **Procedure and Container for a Planned Delivery of an Active Substance**

- Inventors: Peter Borrman, Philippe Jund, Seong Gon Kim, David Tomanek
- Country where Patent was Filed: Germany
- German Patent Number: DE 196 06 804 A1
- MSU Invention Disclosure Number: 95-071
- Main Purpose: Programmed delivery of cancer drugs to tumor areas
- [Text of the Patent Application](#) (PDF format)



- [Click Here for numerical simulation.](#)

- **Carbon Nanotube Reinforced Metal Composites and Method of Forming Same**

- Inventors: Vera P. Val'chuk, Tatiana Val'chuk, Leonid A. Chernozatonskii, David Tomanek
 - MSU Invention Disclosure Number: 97-050
-

- **Micro-Fastening System and Method of Manufacture**

- Main Purpose: Synthesis and application of "nano-Velcro(TM)" consisting of functionalized nanotubes
 - Inventors: David Tomanek, Richard J. Enbody, and Young-Kyun Kwon
 - MSU Invention Disclosure Number: 97-077
 - Country where Patent was Filed: USA
 - Patent Filing Date: February 12, 1999
 - [Text of the Patent Application](#)
-

- **Nanocapsules containing charged particles, their uses and methods of forming the same**

- Main Purpose: Design of computer memory devices based on carbon nanotubes containing charged C₆₀ molecules ("bucky-shuttle")
 - Inventors: David Tomanek, Richard J. Enbody, Young-Kyun Kwon, Mark Brehob
 - Country where Patent was Filed: USA
 - Patent Filing Date: February 12, 2000
-

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